

URBAN/MUNICIPAL

CA4 ONHBLU16

H18  
1995



# 1995 HAMILTON-WENTWORTH COLLISION REPORT

PREPARED BY:

DEPARTMENT OF  
PUBLIC WORKS AND TRAFFIC

City of  
HAMILTON



JAN 3 1997

GOVERNMENT DOCUMENTS

## 1995 Hamilton-Wentworth Collision Report

Prepared For:

The Transportation Department  
of the Regional Municipality of Hamilton-Wentworth  
and  
The Hamilton-Wentworth Regional Police Department

By:

The City of Hamilton Public Works and Traffic Department

Project Manager:

H.L. Solomon, P. Eng.





## ACKNOWLEDGEMENTS

The Project Staff of the Hamilton Traffic Department wish to express their appreciation to the members of the Transportation and Planning Departments of the Regional Municipality of Hamilton-Wentworth, the Regional Police Department and the Ministry of Transportation of Ontario for their co-operation and assistance in the preparation of this report.

The Project Staff was comprised of Ms. Linda Juchniewicz, Ms. Wendy Crevier, Mr. H. Solomon, and Mr. Rob Galloway of the Traffic Department. The Department wishes to thank Mr. Roland Salmon and the staff of the Services Division of the City Clerk's Department for their assistance in the printing of the report.



## 1995 HAMILTON-WENTWORTH COLLISION REPORT

### Introduction

The annual report is a summary of factors associated with traffic collisions that occurred in the Regional Municipality of Hamilton-Wentworth in 1995. The report is comprised of two documents. This portion contains the overall frequencies and trends, plus location-specific data. The information in this portion is produced annually. A companion report will be available in early 1997 detailing driver and pedestrian behaviour and road and weather conditions based on a 3-year average.

The Regional Municipality of Hamilton-Wentworth is situated in southern Ontario at the westerly end of Lake Ontario. The following municipalities are located within the Region: the Town of Ancaster; the Town of Dundas; the Town of Flamborough; the Township of Glanbrook; the City of Hamilton and the City of Stoney Creek. The estimated total population of these combined localities was 459,656 in 1994.

Traffic collisions are a primary cause of accidental deaths, injuries and associated property losses. The intention of this report is to provide factual information to those agencies and persons concerned with the safety of the roadway transportation system within the Regional Municipality of Hamilton-Wentworth.

Traffic collisions frequently involve complex interactions between human behaviour, vehicle characteristics and environmental conditions. The factor or factors responsible for causing a collision are not always the most obvious nor are they always readily apparent. Caution should be exercised in drawing conclusions from the statistics presented in this report and conclusions should be drawn only with appropriate qualifications and supportive information.

The information presented in this report is based primarily upon motor vehicle collisions investigated by the Hamilton-Wentworth Regional Police. All collisions occurring in Hamilton-Wentworth are included in the statistics in this report excluding collisions occurring on the Queen Elizabeth Way and Highway 403 and on-ramps and off-ramps to those highways. Collisions occurring on service roads to the Queen Elizabeth Way are included.







## 1995 COMPARED WITH PREVIOUS YEARS

### 1. Overall Collisions

1,246 fewer collisions were reported in 1995 than in 1994. The total number of collisions reported in 1995 was the lowest in the past 3 decades. However, this should be qualified by the fact that a citizen's report form was introduced in 1994 to report collisions that were considered to be non-reportable. It has been noted by the Hamilton-Wentworth Regional Police Department that an undetermined number of reportable collisions are being recorded on the citizen's report form thereby possibly lowering the true number of reportable collisions. However, this would not materially affect the number of injury collision reports.

The occurrence of injury collisions also decreased, by 94 injury collisions. The number of injury collisions reported was also the lowest in 30 years. The number of fatal collisions in 1995 was 19.

### 2. Bicycle Injuries

The number of people injured in motor vehicle collisions while riding on a bicycle decreased by 34 from 1994 to 1995. There was only 1 cyclist fatality in 1995.

### 3. Pedestrian Fatalities

In 1995, there were 8 pedestrian fatalities. This was higher than 1993 and 1994 but comparable to 1986 through 1992.

### 4. Alcohol Involvement

Alcohol involvement in motor vehicle collisions has been, on average, steadily decreasing since 1978. In the years 1990 to present, alcohol involvement in collisions averaged 5.8 percent, compared to 10.3 percent for the previous 12 years. The rate was 5.5 percent in 1995. The involvement of young drivers (under 21) who had been drinking was the second lowest in eighteen years.



### SUMMARY

- \* In 1995, 5,987 reported traffic collisions occurred on municipal roadways in the Regional Municipality of Hamilton-Wentworth. These collisions resulted in:
  - 11 driver or passenger fatalities (9 motor vehicle drivers, and 2 riders/passengers)
  - 1 cyclist fatality
  - 8 pedestrian fatalities
  - 2,763 driver, cyclist or passenger injuries (not including fatalities)
  - 278 pedestrian injuries (not including fatalities)
  - 16,923 persons (equal to approximately 3.7 percent of the Regional population) being involved in a reported traffic collision
- \* The overall frequency of collisions in Hamilton-Wentworth is generally lower than other major Canadian municipalities.





## TABLE OF CONTENTS

### EXECUTIVE SUMMARY 1995 COMPARED WITH PREVIOUS YEARS

|                                                                                | <u>Page</u> |
|--------------------------------------------------------------------------------|-------------|
| CHAPTER ONE - TRENDS                                                           | 1           |
| General                                                                        | 3           |
| Normalizing The Data                                                           | 3           |
| Collisions                                                                     | 3           |
| Injuries                                                                       | 4           |
| Fatalities                                                                     | 4           |
| Alcohol Involvement                                                            | 4           |
| CHAPTER TWO - LOCATIONS                                                        | 13          |
| General                                                                        | 15          |
| Area Municipality                                                              | 15          |
| High Frequency Intersection Locations                                          | 15          |
| Comparison of Hamilton and<br>Hamilton-Wentworth with Selected Canadian Cities | 16          |

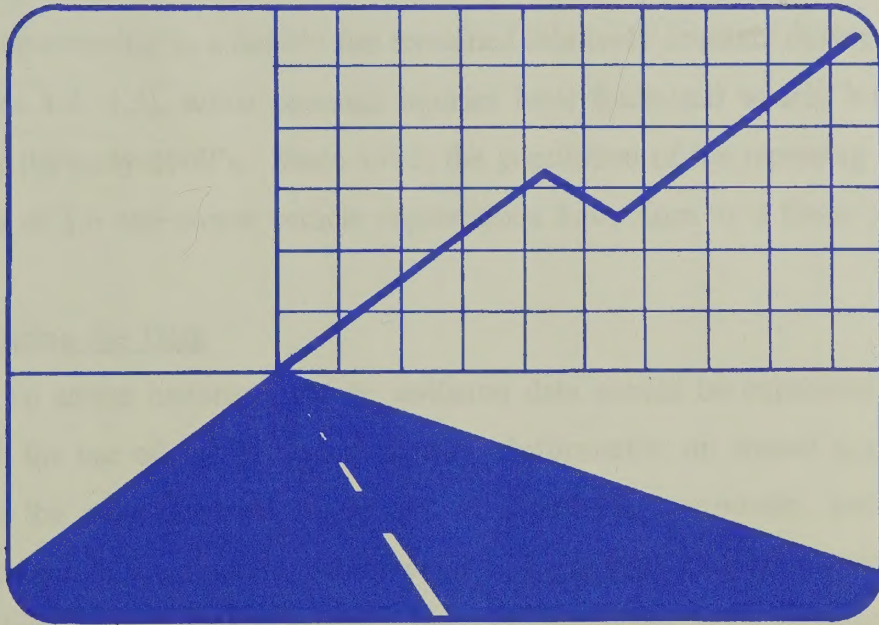




## LIST OF EXHIBITS

| EXHIBIT |                                                                                                                                      | PAGE |
|---------|--------------------------------------------------------------------------------------------------------------------------------------|------|
| 1.1     | Motor Vehicle Collisions: History of Rates of Total Collisions and of Collisions Causing Injury/Fatality (1965-1995)                 | 5    |
| 1.2     | Personal Injuries/Fatalities: History of Injury and Fatality Rates Caused by Motor Vehicle Collisions (1965-1995)                    | 6    |
| 1.3     | Pedestrians Involved in Collisions: History of Injury and Fatality Rates (1965-1995)                                                 | 7    |
| 1.4     | Motor Vehicle Collision History (1966-1995)                                                                                          | 8    |
| 1.5     | History of Personal Injuries and Fatalities Caused by Motor Vehicle Collisions (1962-1995)                                           | 9    |
| 1.6     | History of Pedestrian and Cyclist Injuries/Fatalities (1964-1995)                                                                    | 10   |
| 1.7     | History of Alcohol-Related Motor Vehicle Collisions (1978-1995)                                                                      | 11   |
| 2.1     | Collisions vs Area Municipality                                                                                                      | 17   |
| 2.2     | Intersections with the Highest Number of Collisions in 1995                                                                          | 18   |
| 2.3     | Signalized Intersections With the Highest Collisions Rates in 1995                                                                   | 20   |
| 2.4     | Two-way Stop Intersections with the Highest Collision Rates, 1991-1995                                                               | 23   |
| 2.5     | All-way Stop Intersections with the Highest Collision Rates, 1991-1995                                                               | 26   |
| 2.6     | Urban Road Sections with the Highest Collision Rates, 1991-1995<br>City of Hamilton Arterials, Signalized Intersections not Included | 28   |
| 2.7     | Urban Road Sections with the Highest Collision Rates, 1991-1995<br>City of Hamilton Arterials, Intersections not Included            | 29   |
| 2.8     | 1995 Collision Statistics - Selected Canadian Cities                                                                                 | 31   |



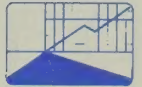


# Chapter One

## Trends







## Chapter 1

### General

Since peaking in 1965, the overall number of motor vehicle collisions and the number of pedestrians injured in motor vehicle collisions in the Regional Municipality of Hamilton-Wentworth has exhibited a steadily decreasing trend (Exhibits 1.4, 1.6). The number of collisions resulting in a fatality has remained relatively constant during the same time period (Exhibits 1.4, 1.5), while personal injuries have fluctuated widely but are presently at the level of the early 1960's. Since 1965, the population of the reporting area has increased by a factor of 1.6 and motor vehicle registrations have risen by a factor of 3.0.

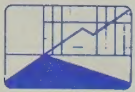
### Normalizing the Data

To assess historical trends, collision data should be expressed as a normalized rate through the use of one of several factors. Information on annual motor vehicle use would provide the most accurate assessment of a motorist's exposure, and hence, likelihood of involvement in a collision. Motor vehicle registration data is somewhat less accurate as a normalizing factor, but is utilized later in this report since exposure information is not available. Population also provides a suitable and accurate normalizing factor. Exhibits 1.1, 1.2, 1.3 and associated analysis in the rest of this chapter refer to data which has been calculated on a population **rate** basis (based on 1994 population data), rather than on the basic number of occurrences.

### Collisions

The overall motor vehicle collision rate is shown in Exhibit 1.1. As of January 1, 1978, the reporting level for property damage only collisions was raised from \$200.00 to \$400.00. On January 1, 1985, it was raised again from \$400.00 to \$700.00. The reporting area also increased in 1974. Considering these changes, the rate for total collisions appears to show a decline from 1977 to 1992. 1993 shows the first significant increase in 5 years. **However, 1995 shows the lowest rate experienced in the 30 years for which records have been kept.** The rate of collisions involving injury or fatality shows a modest decline from 1973 to 1993 (Exhibit 1.1). **Injury collisions are also at the lowest rate for the 30-year record keeping period.** Individual trends of injuries and fatalities are discussed below.





### Injuries

The rate of personal injury (Exhibits 1.2, 1.5) is rather volatile. However, since 1989, the rate of personal injury has been on the decline and the rate of personal injury in 1995 is the lowest it has been since 1965. This volatility is likely related to the nature and severity of the collisions which could be the result of a number of factors. The rate for pedestrian injuries (Exhibits 1.3, 1.6) shows a significant and continuing decline from 1966 to 1995.

### Fatalities

In 1995, 20 persons died in motor vehicle collisions in Hamilton-Wentworth. Fatal collisions are rare events and small changes in the number of fatalities cause large fluctuations in the fatality rate (Exhibit 1.2, 1.4).

In 1995, 8 pedestrians died in motor vehicle collisions. The fatality rate for pedestrians (Exhibit 1.3, 1.6) displays a general reducing trend, especially since 1978.

### Alcohol Involvement

When viewed as a proportion of overall collisions, alcohol involvement (Exhibit 1.7) has been, on average, steadily decreasing since 1978. In the years 1988 to 1995, collision involvement remained relatively constant with an average of 5.8 percent which is much lower than the previous 12-year average of 10.3 percent. The 1995 percentage of 5.5 is one of the lowest in the 18 years this report has compiled the statistic. The percentage of total fatal collisions that were alcohol-related has been generally decreasing since 1984, with the exception of 1989, 1993 and 1995. An average of 17 percent of all fatal collisions between 1984 and the present have been alcohol-related, with the average for the past 3 years being 15.8 percent. In 1995, that statistic declined to 5.3 percent. The percentage of impaired/had-been-drinking drivers under the age of 21 has steadily been declining since 1979, with the exception of 1986. The 1995 percentage of young drivers in collisions who had been drinking was lower than any year except 1992. These figures indicate that, in recent years, alcohol involvement in collisions is declining.



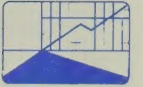
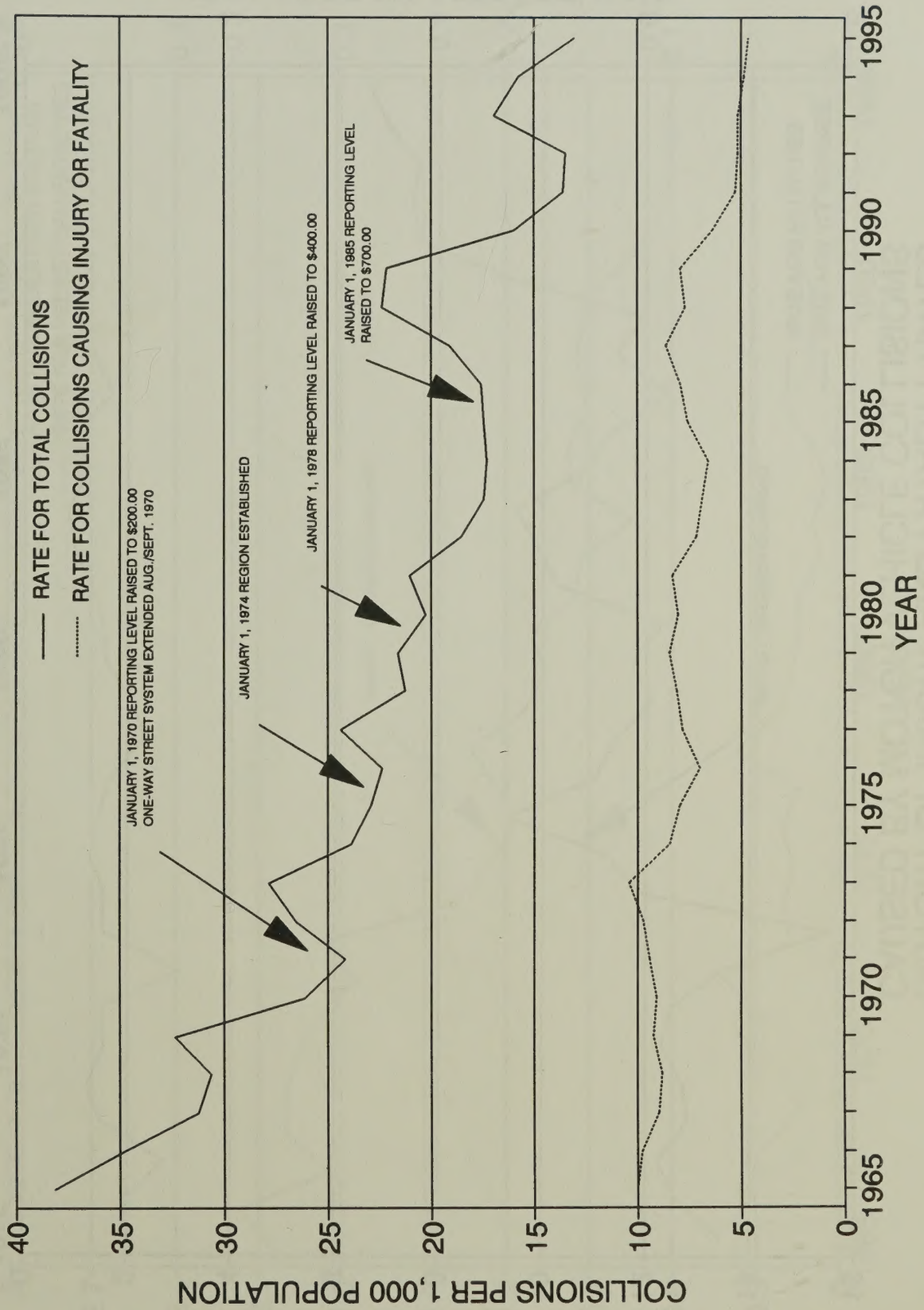
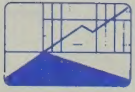


Exhibit 1.1

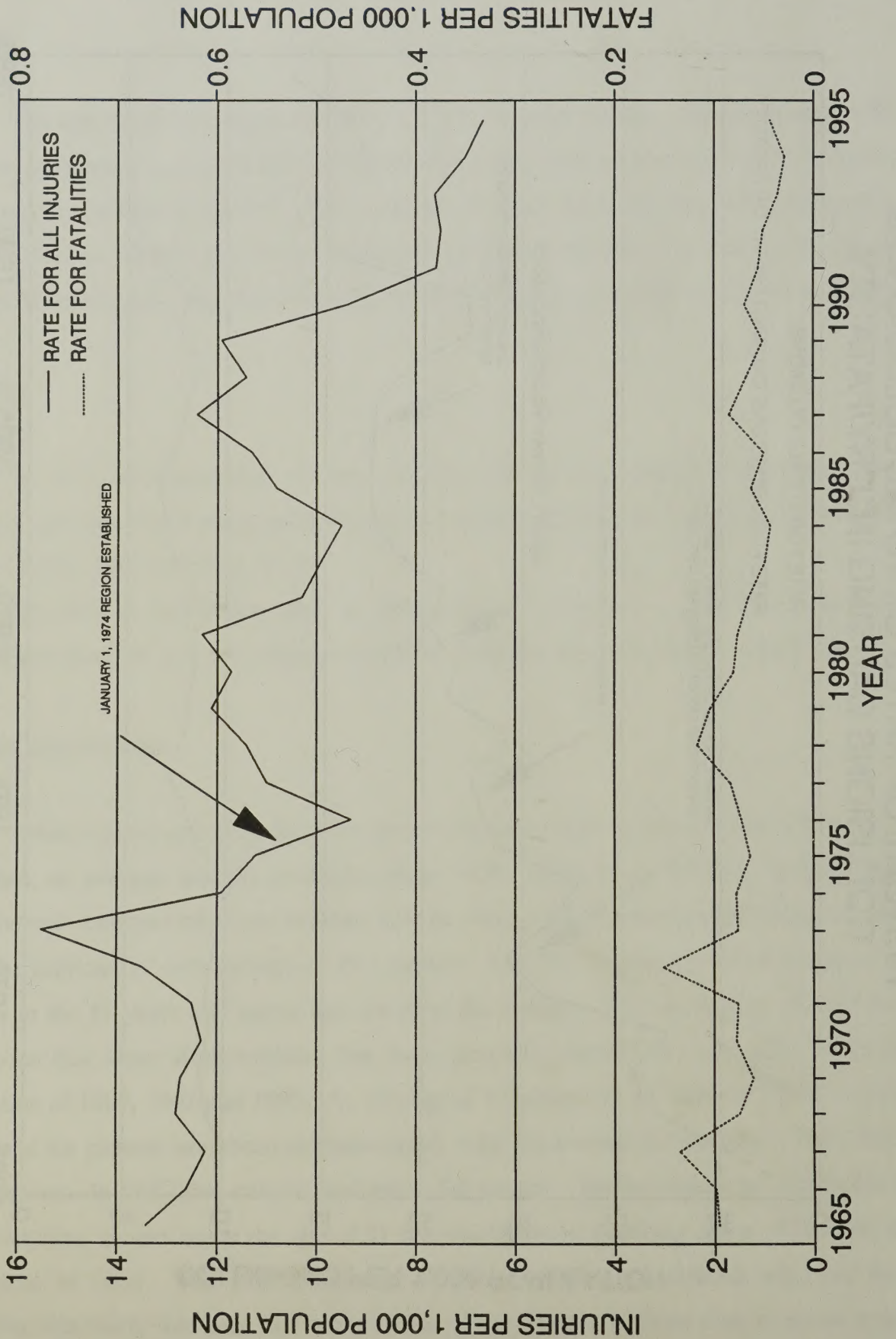
# MOTOR VEHICLE COLLISIONS: HISTORY OF RATES OF TOTAL COLLISIONS & COLLISIONS CAUSING INJURY/FATALITY





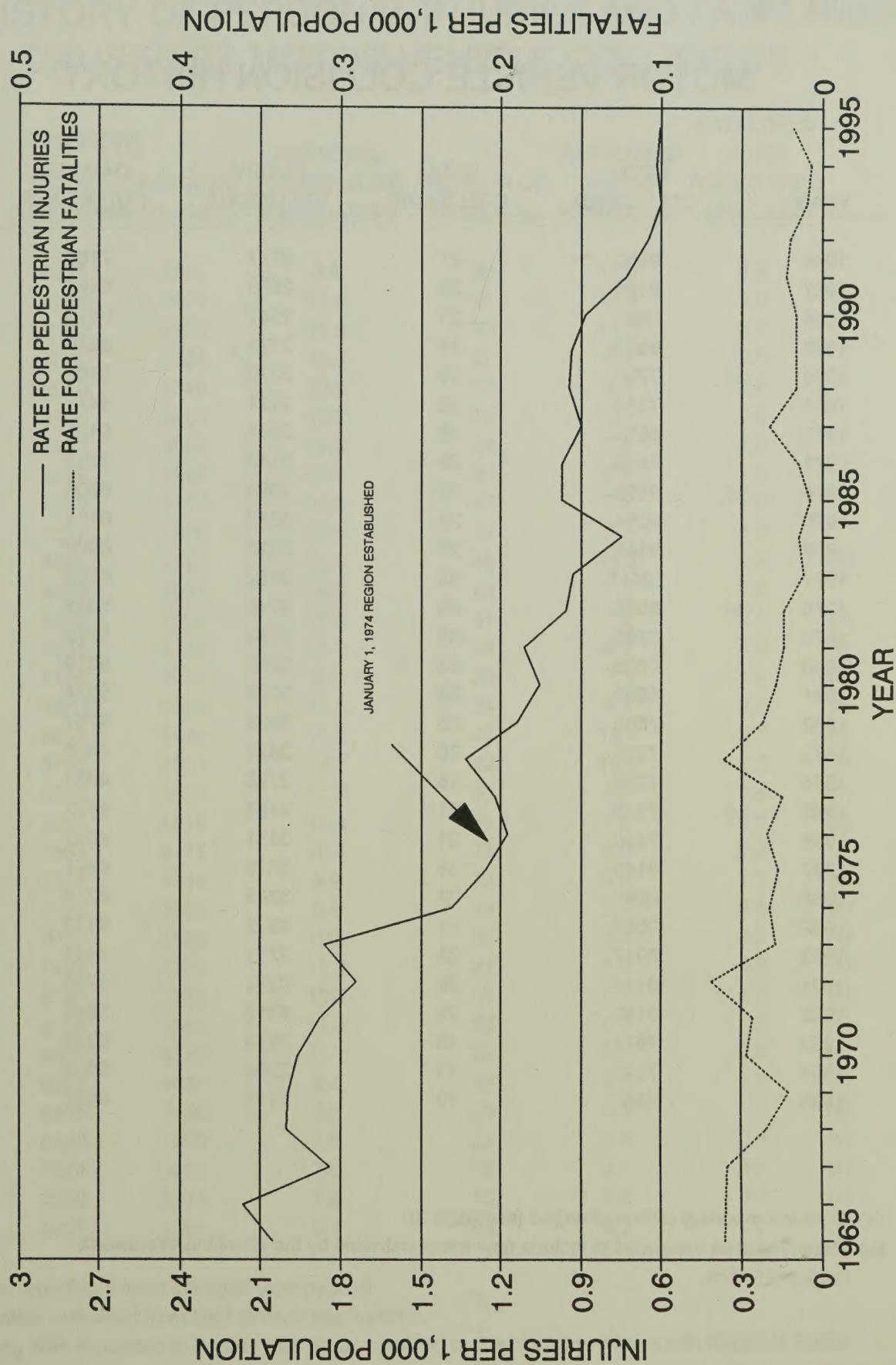
## PERSONAL INJURIES/FATALITIES: HISTORY OF INJURY AND FATALITY RATES CAUSED BY MOTOR VEHICLE COLLISIONS

Exhibit 1.2

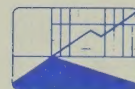




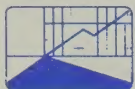
# PEDESTRIANS INVOLVED IN COLLISIONS: HISTORY OF INJURY AND FATALITY RATES



JANUARY 1, 1974 REGION ESTABLISHED







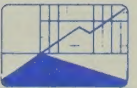
## Exhibit 1.4

## MOTOR VEHICLE COLLISION HISTORY

| YEAR |     | TOTAL<br>COLLISIONS | FATAL<br>COLLISIONS | INJURY<br>COLLISIONS | PROPERTY<br>DAMAGE<br>COLLISIONS |
|------|-----|---------------------|---------------------|----------------------|----------------------------------|
| 1966 |     | 9950                | 27                  | 2757                 | 7166                             |
| 1967 |     | 9106                | 35                  | 2575                 | 6496                             |
| 1968 |     | 8983                | 21                  | 2547                 | 6415                             |
| 1969 |     | 9589                | 19                  | 2721                 | 6849                             |
| 1970 | (a) | 7799                | 23                  | 2676                 | 5100                             |
| 1971 |     | 7314                | 22                  | 2821                 | 4471                             |
| 1972 |     | 8065                | 39                  | 2901                 | 5125                             |
| 1973 |     | 8499                | 23                  | 3143                 | 5333                             |
| 1974 | (b) | 9599                | 29                  | 3364                 | 6206                             |
| 1975 |     | 9354                | 24                  | 3219                 | 6111                             |
| 1976 |     | 9146                | 28                  | 2816                 | 6302                             |
| 1977 |     | 10011               | 33                  | 3182                 | 6796                             |
| 1978 | (a) | 8636                | 45                  | 3246                 | 5345                             |
| 1979 |     | 8798                | 39                  | 3389                 | 5370                             |
| 1980 |     | 9305                | 33                  | 3253                 | 5019                             |
| 1981 |     | 8660                | 28                  | 3398                 | 5234                             |
| 1982 |     | 7663                | 23                  | 2939                 | 4701                             |
| 1983 |     | 7268                | 20                  | 2839                 | 4409                             |
| 1984 |     | 7228                | 18                  | 2726                 | 4484                             |
| 1985 | (a) | 7346                | 21                  | 3153                 | 4172                             |
| 1986 |     | 7434                | 21                  | 3331                 | 4082                             |
| 1987 |     | 8140                | 35                  | 3615                 | 4491                             |
| 1988 |     | 9586                | 22                  | 3285                 | 6279                             |
| 1989 |     | 9566                | 21                  | 3372                 | 6173                             |
| 1990 |     | 6917                | 25                  | 2751                 | 4141                             |
| 1991 |     | 6145                | 25                  | 2331                 | 3789                             |
| 1992 |     | 6180                | 22                  | 2312                 | 3846                             |
| 1993 |     | 7674                | 15                  | 2313                 | 5346                             |
| 1994 |     | 7233                | 13                  | 2205                 | 5015                             |
| 1995 |     | 5987                | 19                  | 2111                 | 3857                             |

(a) Collision reporting criteria changed (see page 3).

(b) Reporting area expanded to include new areas patrolled by the Hamilton-Wentworth Regional Police.



# HISTORY OF PERSONAL INJURIES AND FATALITIES CAUSED BY MOTOR VEHICLE COLLISIONS

| YEAR     | TOTAL COLLISIONS | PERSONS INJURED | PERSONAL INJURIES/1,000 POPULATION | NUMBER OF FATALITIES | FATALITIES/100,000 POPULATION | FATALITIES/10,000 REGISTERED VEHICLES |     |
|----------|------------------|-----------------|------------------------------------|----------------------|-------------------------------|---------------------------------------|-----|
| 1962     | 8338             | 2542            | 9.5                                | 32                   | 11.9                          | 3.8                                   |     |
| 1963     | 9554             | 3075            | 11.6                               | 27                   | 10.2                          | 3.0                                   |     |
| 1964     | 9948             | 3305            | 11.9                               | 32                   | 11.5                          | 3.4                                   |     |
| 1965     | 10783            | 3824            | 13.4                               | 27                   | 9.5                           | 2.6                                   |     |
| 1966     | 9950             | 3746            | 12.6                               | 28                   | 9.8                           | 2.6                                   |     |
| 1967     | 9106             | 3484            | 12.2                               | 39                   | 13.7                          | 3.6                                   |     |
| 1968     | 8983             | 3574            | 12.8                               | 22                   | 7.9                           | 1.9                                   |     |
| 1969     | 9589             | 3768            | 12.7                               | 19                   | 6.4                           | 1.6                                   |     |
| 1970 (a) | 7799             | 3717            | 12.3                               | 23                   | 7.5                           | 2.0                                   |     |
| 1971     | 7314             | 3876            | 12.5                               | 23                   | 7.0                           | 1.9                                   |     |
| 1972     | 8065             | 4055            | 13.5                               | 46                   | 15.3                          | 3.4                                   | (b) |
| 1973     | 8499             | 4951            | 15.5                               | 23                   | 7.2                           | 1.6                                   |     |
| 1974 (c) | 9599             | 4678            | 11.9                               | 31                   | 7.9                           | 2.0                                   | (b) |
| 1975     | 9354             | 4474            | 11.2                               | 26                   | 6.5                           | 1.6                                   | (b) |
| 1976     | 9146             | 3811            | 9.3                                | 29                   | 7.1                           | 1.8                                   | (b) |
| 1977     | 10011            | 4513            | 11.0                               | 34                   | 8.3                           | 2.0                                   | (b) |
| 1978 (a) | 8636             | 4635            | 11.4                               | 47                   | 11.6                          | 2.1                                   | (d) |
| 1979     | 8798             | 4923            | 12.1                               | 42                   | 10.3                          | 2.2                                   | (d) |
| 1980     | 8305             | 4800            | 11.7                               | 33                   | 8.0                           | 1.4                                   | (d) |
| 1981     | 8660             | 5015            | 12.3                               | 31                   | 7.6                           | 1.1                                   | (d) |
| 1982     | 7663             | 4175            | 10.3                               | 27                   | 6.6                           | 0.9                                   |     |
| 1983     | 7268             | 4041            | 9.9                                | 20                   | 4.9                           | 1.1                                   | (e) |
| 1984     | 7228             | 3855            | 9.5                                | 18                   | 3.8                           | 0.8                                   | (e) |
| 1985 (a) | 7346             | 4529            | 10.8                               | 26                   | 6.2                           | 1.2                                   | (e) |
| 1986     | 7434             | 4758            | 11.3                               | 21                   | 5.0                           | 0.9                                   | (e) |
| 1987     | 8140             | 5220            | 12.4                               | 36                   | 8.4                           | 1.5                                   | (e) |
| 1988     | 9586             | 4898            | 11.4                               | 29                   | 6.8                           | 1.2                                   | (e) |
| 1989     | 9566             | 5145            | 11.9                               | 22                   | 5.1                           | 0.9                                   | (e) |
| 1990     | 6917             | 4053            | 9.4                                | 30                   | 6.9                           | 1.2                                   | (e) |
| 1991     | 6415             | 3420            | 7.6                                | 25                   | 5.5                           | 1.0                                   | (d) |
| 1992     | 6180             | 3439            | 7.5                                | 23                   | 5.0                           | 0.8                                   | (e) |
| 1993     | 7674             | 3421            | 7.6                                | 16                   | 3.5                           | 0.5                                   | (e) |
| 1994     | 7233             | 3213            | 7.4                                | 13                   | 3.0                           | 0.4                                   | (e) |
| 1995     | 5987             | 3061            | 6.7                                | 20                   | 4.3                           | 0.6                                   | (e) |

(a) Collision reporting criteria changed (see page.3).

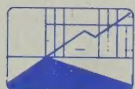
(b) Registration estimated from total Ontario registrations.

(c) Reporting area expanded to include new areas patrolled by the Hamilton-Wentworth Regional Police.

(d) Registration data from licence information.

(e) Registration data from licence information for Wentworth County.





## Exhibit 1.6

# HISTORY OF PEDESTRIAN AND CYCLIST INJURIES AND FATALITIES

| YEAR     | COLLISIONS INVOLVING PEDESTRIANS<br>(c) | PEDESTRIANS INJURED<br>(a) | PEDESTRIAN FATALITIES | COLLISIONS INVOLVING CYCLISTS<br>(c) | CYCLISTS INJURED<br>(a) | CYCLIST FATALITIES |
|----------|-----------------------------------------|----------------------------|-----------------------|--------------------------------------|-------------------------|--------------------|
| 1964     |                                         | 526                        | 20                    |                                      | 120                     | 0                  |
| 1965     |                                         | 582                        | 17                    |                                      | 140                     | 0                  |
| 1966     |                                         | 618                        | 17                    |                                      | 132                     | 1                  |
| 1967     |                                         | 537                        | 17                    |                                      | 113                     | 0                  |
| 1968     |                                         | 588                        | 10                    |                                      | 84                      | 1                  |
| 1969     |                                         | 602                        | 6                     |                                      | 91                      | 2                  |
| 1970     |                                         | 586                        | 14                    |                                      | 101                     | 1                  |
| 1971     |                                         | 570                        | 13                    |                                      | 155                     | 2                  |
| 1972     |                                         | 530                        | 21                    |                                      | 156                     | 2                  |
| 1973     |                                         | 569                        | 9                     |                                      | 197                     | 1                  |
| 1974 (b) |                                         | 555                        | 13                    |                                      | 192                     | 3                  |
| 1975     |                                         | 513                        | 11                    |                                      | 235                     | 0                  |
| 1976     |                                         | 480                        | 14                    |                                      | 195                     | 0                  |
| 1977     |                                         | 503                        | 10                    |                                      | 193                     | 3                  |
| 1978     |                                         | 542                        | 25                    |                                      | 162                     | 1                  |
| 1979     |                                         | 464                        | 15                    |                                      | 177                     | 4                  |
| 1980     |                                         | 434                        | 12                    |                                      | 178                     | 1                  |
| 1981     |                                         | 458                        | 10                    |                                      | 159                     | 1                  |
| 1982     |                                         | 396                        | 10                    |                                      | 252                     | 2                  |
| 1983     |                                         | 387                        | 5                     |                                      | 200                     | 2                  |
| 1984     |                                         | 314                        | 6                     |                                      | 175                     | 1                  |
| 1985     |                                         | 410                        | 3                     |                                      | 239                     | 2                  |
| 1986     | 384                                     | 412                        | 6                     | 229                                  | 228                     | 2                  |
| 1987     | 379                                     | 383                        | 14                    | 244                                  | 244                     | 2                  |
| 1988     | 401                                     | 406                        | 7                     | 239                                  | 225                     | 0                  |
| 1989     | 411                                     | 403                        | 7                     | 164                                  | 154                     | 3                  |
| 1990     | 381                                     | 383                        | 7                     | 208                                  | 195                     | 0                  |
| 1991     | 332                                     | 330                        | 10                    | 193                                  | 185                     | 3                  |
| 1992     | 300                                     | 297                        | 9                     | 219                                  | 209                     | 3                  |
| 1993     | 299                                     | 291                        | 4                     | 201                                  | 183                     | 0                  |
| 1994     | 290                                     | 283                        | 3                     | 196                                  | 185                     | 2                  |
| 1995     | 293                                     | 286                        | 8                     | 163                                  | 152                     | 1                  |

(a) One or more pedestrian/cyclist could be involved and a fatality/injury may not have occurred. Includes injuries and fatalities.

(b) Prior to this year, reporting was for the City of Hamilton only.

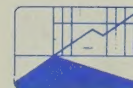
(c) This information was not available until 1986.

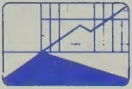


## HISTORY OF ALCOHOL - RELATED MOTOR VEHICLE COLLISIONS

| YEAR | TOTAL<br>REPORTED<br>COLLISIONS | TOTAL<br>ALCOHOL-<br>RELATED<br>COLLISIONS | %<br>OF TOTAL<br>COLLISIONS<br>INVOLVING<br>ALCOHOL | %<br>IMPAIRED<br>OR HAD<br>BEEN DRINKING<br>DRIVERS<br>UNDER THE<br>AGE OF 21 | TOTAL<br>FATAL<br>COLLISIONS | ALCOHOL-<br>RELATED<br>FATAL<br>COLLISIONS (a) | %<br>FATAL<br>COLLISIONS<br>HAVING<br>ALCOHOL<br>INVOLVED |
|------|---------------------------------|--------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------|------------------------------|------------------------------------------------|-----------------------------------------------------------|
| 1978 | 8636                            | 1128                                       | 13.1                                                | 22.1                                                                          | 45                           | 11                                             | 24.4                                                      |
| 1979 | 8798                            | 1139                                       | 12.9                                                | 22.1                                                                          | 39                           | 5                                              | 12.8                                                      |
| 1980 | 8305                            | 929                                        | 11.2                                                | 18.7                                                                          | 33                           | 11                                             | 33.3                                                      |
| 1981 | 8660                            | 1053                                       | 12.2                                                | 16.4                                                                          | 28                           | 8                                              | 28.6                                                      |
| 1982 | 7663                            | 895                                        | 11.7                                                | 19.0                                                                          | 23                           | 3                                              | 13.0                                                      |
| 1983 | 7268                            | 765                                        | 10.5                                                | 18.6                                                                          | 20                           | 5                                              | 25.0                                                      |
| 1984 | 7228                            | 729                                        | 10.1                                                | 15.0                                                                          | 18                           | 5                                              | 27.8                                                      |
| 1985 | 7346                            | 644                                        | 8.8                                                 | 12.7                                                                          | 21                           | 5                                              | 23.8                                                      |
| 1986 | 7434                            | 596                                        | 8.0                                                 | 20.5                                                                          | 21                           | 4                                              | 19.0                                                      |
| 1987 | 8140                            | 589                                        | 7.2                                                 | 11.9                                                                          | 35                           | 5                                              | 14.3                                                      |
| 1988 | 9586                            | 582                                        | 6.1                                                 | 9.9                                                                           | 22                           | 2                                              | 9.1                                                       |
| 1989 | 9566                            | 542                                        | 5.7                                                 | 6.7                                                                           | 21                           | 6                                              | 28.6                                                      |
| 1990 | 6917                            | 430                                        | 6.2                                                 | 6.6                                                                           | 25                           | 4                                              | 16.0                                                      |
| 1991 | 6145                            | 385                                        | 6.3                                                 | 7.6                                                                           | 25                           | 3                                              | 12.0                                                      |
| 1992 | 6180                            | 398                                        | 6.4                                                 | 2.1                                                                           | 22                           | 0                                              | 0.0                                                       |
| 1993 | 7674                            | 397                                        | 5.1                                                 | 5.5                                                                           | 15                           | 4                                              | 26.7                                                      |
| 1994 | 7233                            | 359                                        | 5.0                                                 | 4.7                                                                           | 13                           | 2                                              | 15.4                                                      |
| 1995 | 5987                            | 327                                        | 5.5                                                 | 3.7                                                                           | 19                           | 1                                              | 5.3                                                       |

(a) Includes drivers classified as impaired due to alcohol or classified as had been drinking.





# 1995 Hamilton-Wentworth Collision Report

TRENDS

## HISTORY OF PEDESTRIAN AND CYCLIST INJURY AND FATALITY

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

PEDESTRIAN INJURY AND FATALITY  
CYCLIST INJURY AND FATALITY

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

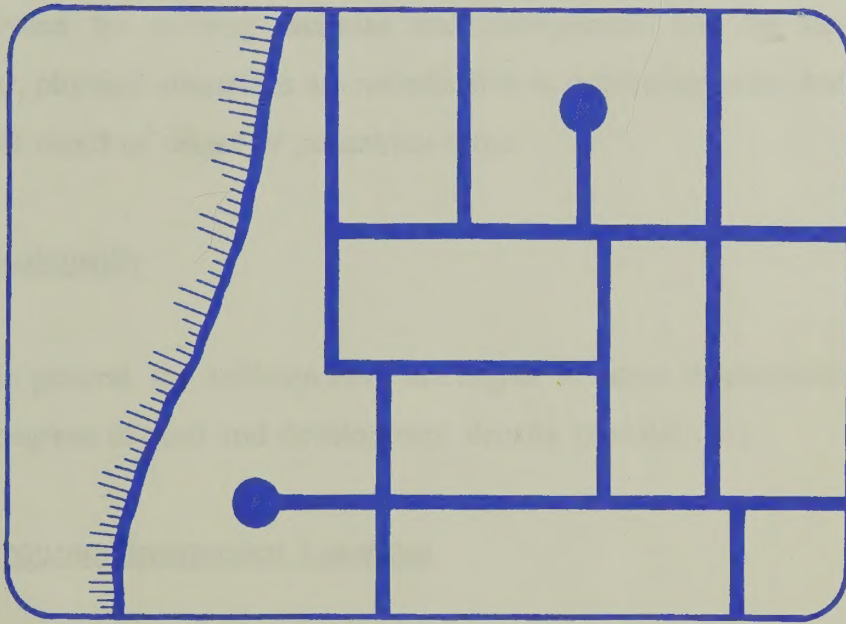
1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

| YEAR | PEDESTRIAN INJURY | PEDESTRIAN FATALITY | CYCLIST INJURY | CYCLIST FATALITY |
|------|-------------------|---------------------|----------------|------------------|
| 1980 | 12                | 1                   | 15             | 2                |
| 1981 | 10                | 1                   | 12             | 1                |
| 1982 | 11                | 1                   | 14             | 2                |
| 1983 | 9                 | 1                   | 11             | 1                |
| 1984 | 8                 | 1                   | 10             | 1                |
| 1985 | 7                 | 1                   | 9              | 1                |
| 1986 | 6                 | 1                   | 8              | 1                |
| 1987 | 5                 | 1                   | 7              | 1                |
| 1988 | 4                 | 1                   | 6              | 1                |
| 1989 | 3                 | 1                   | 5              | 1                |
| 1990 | 2                 | 1                   | 4              | 1                |
| 1991 | 1                 | 1                   | 3              | 1                |
| 1992 | 1                 | 1                   | 2              | 1                |
| 1993 | 1                 | 1                   | 1              | 1                |
| 1994 | 1                 | 1                   | 1              | 1                |
| 1995 | 1                 | 1                   | 1              | 1                |

PEDESTRIAN INJURY AND FATALITY  
CYCLIST INJURY AND FATALITY



## Chapter Two

# Locations







## Chapter 2

### General

Locations that have high numbers or rates of collision occurrence have received regular attention by roadway authorities in the Region. Countermeasures are constantly being implemented for existing facilities and incorporated into the design of new facilities. However, physical alterations are not effective in preventing many traffic collisions which are the direct result of driver or pedestrian error.

### Area Municipality

In general, the collision rates are higher in larger municipalities and with those with higher degrees of road and development density (Exhibit 2.1).

### High Frequency Intersection Locations

Exhibit 2.2 represents a list of the 46 locations which experienced the highest number of collision occurrences in 1995. All 1995 collisions occurring at traffic signals were subjected to the control chart analysis technique (Exhibit 2.3) which analyzes rates based on volumes of traffic. Exhibit 2.3 also provides a five-year average for each intersection.

Exhibits 2.4 and 2.5 show all-way stop locations and two-way stop locations with the highest collision rates.

These exhibits do not necessarily represent priority lists for improvements as other factors have to be taken into account such as cost-benefit considerations or the deployment of other collision countermeasures which may be more cost-effective.

In many cases, countermeasures have already been implemented or these locations are under consideration for various forms of improvement on a priority basis.

Exhibits 2.6 and 2.7 provide data on rates of collision occurrence on roadway sections, showing the 25 sections of major roadway with the highest rates. Exhibit 2.6 shows rates which are calculated including collisions at unsignalized intersections but excluding collisions

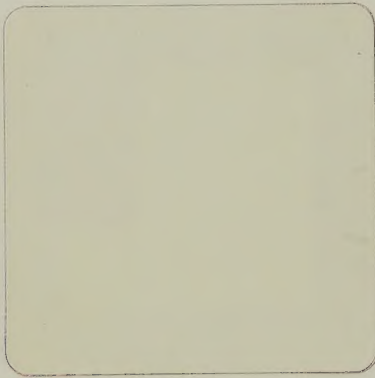




at signalized intersections. Exhibit 2.7 shows rates which are calculated excluding any collisions occurring within 9 m of an intersection (signalized or unsignalized).

### Comparison of Hamilton and Hamilton-Wentworth with other Cities

On the basis of total collisions per 1,000 population, Hamilton and Hamilton-Wentworth are very close to the lowest rates in Canada (Exhibit 2.8). On the basis of injury collisions per 1,000 population, the City and Region are better than average.







## Exhibit 2.1

## COLLISIONS vs AREA MUNICIPALITY

| MUNICIPALITY                                                    | CLASS OF COLLISION (a) |                         |                            |                       | 1995<br>COLLISION<br>RATE PER<br>1,000 POP.(c) |
|-----------------------------------------------------------------|------------------------|-------------------------|----------------------------|-----------------------|------------------------------------------------|
|                                                                 | FATAL                  | NON-<br>FATAL<br>INJURY | PROPERTY<br>DAMAGE<br>ONLY | ALL<br>COLLISIONS (b) |                                                |
| ANCASTER                                                        | 2                      | 75                      | 135                        | 212                   | 9.2                                            |
| DUNDAS                                                          | 0                      | 61                      | 132                        | 193                   | 8.6                                            |
| FLAMBOROUGH                                                     | 1                      | 86                      | 134                        | 221                   | 6.9                                            |
| GLANBROOK                                                       | 0                      | 29                      | 65                         | 94                    | 9.2                                            |
| CITY OF HAMILTON                                                | 16                     | 1642                    | 3078                       | 4736                  | 14.8                                           |
| STONEY CREEK                                                    | 0                      | 218                     | 313                        | 531                   | 10.1                                           |
| TOTAL FOR THE<br>REGIONAL MUNICIPALITY<br>OF HAMILTON-WENTWORTH | 19                     | 2111                    | 3857                       | 5987                  | 13.3                                           |

(a) Collisions reported to the Hamilton-Wentworth Regional Police only; areas patrolled by the Provincial Police (e.g. Kings Highways) are not included.

(b) Location data missing from a small number of collisions.

(c) Population figure extrapolated based on 1994 population data for each municipality.



## Exhibit 2.2

# INTERSECTIONS WITH THE HIGHEST NUMBER OF COLLISIONS IN 1995 (a)

| INTERSECTION                  | TYPE OF<br>TRAFFIC CONTROL | NUMBER OF<br>COLLISIONS | 5 YEAR<br>AVERAGE |
|-------------------------------|----------------------------|-------------------------|-------------------|
| 1 CENTENNIAL & QUEENSTON (SC) | TRAFFIC SIGNAL             | 22                      | 18.2              |
| 2 DUNDURN & KING              | TRAFFIC SIGNAL             | 20                      | 18.2              |
| 3 NASH & QUEENSTON            | TRAFFIC SIGNAL             | 19                      | 15.4              |
| 4 DUNDURN & MAIN              | TRAFFIC SIGNAL             | 17                      | 20.2              |
| 5 KING & PARKDALE             | TRAFFIC SIGNAL             | 16                      | 9.4               |
| 6 PARKDALE & QUEENSTON        | TRAFFIC SIGNAL             | 16                      | 8.6               |
| 7 MOHAWK & UPPER JAMES        | TRAFFIC SIGNAL             | 15                      | 13.8              |
| 8 BAY & MAIN                  | TRAFFIC SIGNAL             | 14                      | 15.6              |
| 9 CANNON & HUGHSON            | TRAFFIC SIGNAL             | 14                      | 8.2               |
| 10 QUEENSDALE & UPPER GAGE    | TRAFFIC SIGNAL             | 14                      | 8.6               |
| 11 BARTON & CENTENNIAL        | TRAFFIC SIGNAL             | 13                      | 12.8              |
| 12 CENTENNIAL & SOUTH SERVICE | TRAFFIC SIGNAL             | 13                      | 6.4               |
| 13 JOHN & MAIN                | TRAFFIC SIGNAL             | 13                      | 10.6              |
| 14 KENILWORTH & MAIN          | TRAFFIC SIGNAL             | 13                      | 9.8               |
| 15 BARTON & GAGE              | TRAFFIC SIGNAL             | 12                      | 13.8              |
| 16 BARTON & KENILWORTH        | TRAFFIC SIGNAL             | 12                      | 8.0               |
| 17 HUNTER & JOHN              | TRAFFIC SIGNAL             | 12                      | 7.8               |
| 18 JOHN & WILSON              | TRAFFIC SIGNAL             | 12                      | 13.0              |
| 19 KING & QUIGLEY             | TRAFFIC SIGNAL             | 12                      | 8.6               |
| 20 KING & VICTORIA            | TRAFFIC SIGNAL             | 12                      | 10.2              |
| 21 LOCKE & YORK               | TRAFFIC SIGNAL             | 12                      | 11.2              |
| 22 ABERDEEN & DUNDURN         | TRAFFIC SIGNAL             | 11                      | 12.8              |
| 23 FENNELL & UPPER WENTWORTH  | TRAFFIC SIGNAL             | 11                      | 8.8               |





| INTERSECTION                  | TYPE OF<br>TRAFFIC CONTROL | NUMBER OF<br>COLLISIONS | 5 YEAR<br>AVERAGE |
|-------------------------------|----------------------------|-------------------------|-------------------|
| 24 GARTH & LIMERIDGE          | TRAFFIC SIGNAL             | 11                      | 13.0              |
| 25 LIMERIDGE & UPPER JAMES    | TRAFFIC SIGNAL             | 11                      | 9.6               |
| 26 LOCKE & MAIN               | TRAFFIC SIGNAL             | 11                      | 9.6               |
| 27 LONGWOOD & MAIN            | TRAFFIC SIGNAL             | 11                      | 7.6               |
| 28 MAIN & SHERMAN             | TRAFFIC SIGNAL             | 11                      | 7.6               |
| 29 MOHAWK & UPPER WELLINGTON  | TRAFFIC SIGNAL             | 11                      | 8.2               |
| 30 MOHAWK & UPPER WENTWORTH   | TRAFFIC SIGNAL             | 11                      | 11.2              |
| 31 STONE CHURCH & UPPER JAMES | TRAFFIC SIGNAL             | 11                      | 8.2               |
| 32 BARTON & MACNAB            | NB STOP                    | 10                      | 8.8               |
| 33 GRAYS & HIGHWAY 8 (SC)     | TRAFFIC SIGNAL             | 10                      | 10.8              |
| 34 MUD & FIRST ROAD EAST      | EW STOP                    | 10                      | 3.4               |
| 35 ABERDEEN & LOCKE           | TRAFFIC SIGNAL             | 9                       | 4.2               |
| 36 ABERDEEN & LONGWOOD        | TRAFFIC SIGNAL             | 9                       | 6.6               |
| 37 BOOK & FIDDLERS GREEN (A)  | EW STOP                    | 9                       | 5.2               |
| 38 BRITANNIA & KENILWORTH     | TRAFFIC SIGNAL             | 9                       | 5.4               |
| 39 CANNON & JAMES             | TRAFFIC SIGNAL             | 9                       | 9.6               |
| 40 CANNON & MACNAB            | NB STOP                    | 9                       | 8.0               |
| 41 CATHARINE & REBECCA        | WB STOP                    | 9                       | 7.6               |
| 42 FENNEL & UPPER JAMES       | TRAFFIC SIGNAL             | 9                       | 9.4               |
| 43 MAIN & VICTORIA            | TRAFFIC SIGNAL             | 9                       | 12.2              |
| 44 MAIN & WENTWORTH           | TRAFFIC SIGNAL             | 9                       | 7.6               |
| 45 MOHAWK & WEST 5TH          | TRAFFIC SIGNAL             | 9                       | 7.8               |
| 46 MOUNT ALBION & MUD         | TRAFFIC SIGNAL             | 9                       | 5.4               |

(a) Only collisions occurring within 31 feet (9.5 m) of the intersection are defined as being "in" the intersection and are included in this list.

(b) All intersections are in the City of Hamilton unless otherwise indicated:  
(A) Ancaster; (SC) Stoney Creek.





## Exhibit 2.3

SIGNALIZED INTERSECTIONS WITH THE HIGHEST COLLISION RATES  
FROM 1991 TO 1995

| INTERSECTION |                                     | RL (a) | RC (b) | RL/RC | AVG. 3 YR<br>AWDT (c) | NUMBER OF COLLISIONS |      |      |      |    | 5 YR<br>AVG. COMMENT |  |
|--------------|-------------------------------------|--------|--------|-------|-----------------------|----------------------|------|------|------|----|----------------------|--|
|              |                                     |        |        |       | 1991                  | 1992                 | 1993 | 1994 | 1995 |    |                      |  |
| 1            | KING WILLIAM ST<br>& CATHARINE ST   | 1.78   | 1.37   | 1.29  | 7403                  | 6                    | 4    | 7    | 5    | 1  | 4.6 (h)              |  |
| 2            | LIMERIDGE RD<br>& GARTH ST          | 1.61   | 0.94   | 1.72  | 23040                 | 8                    | 18   | 12   | 16   | 11 | 13.0 (h)             |  |
| 3            | WILSON ST<br>& JOHN ST              | 1.43   | 0.91   | 1.58  | 26020                 | 11                   | 9    | 20   | 13   | 12 | 13.0 (h)             |  |
| 4            | CHARLTON AVE<br>& HESS ST           | 1.41   | 1.20   | 1.18  | 10524                 | 8                    | 6    | 5    | 6    | 1  | 5.2 (g)              |  |
| 5            | HUNTER ST<br>& CAROLINE ST          | 1.34   | 1.35   | 0.99  | 7675                  | 3                    | 4    | 2    | 4    | 5  | 3.6                  |  |
| 6            | CANNON ST<br>& HUGHSON ST           | 1.27   | 1.00   | 1.27  | 18400                 | 2                    | 3    | 6    | 16   | 14 | 8.2                  |  |
| 7            | ABERDEEN AVE<br>& DUNDURN ST        | 1.27   | 0.88   | 1.44  | 28738                 | 14                   | 12   | 15   | 12   | 11 | 12.8                 |  |
| 8            | MOHAWK RD<br>& UPPER OTTAWA ST      | 1.16   | 0.85   | 1.37  | 33938                 | 16                   | 24   | 22   | 4    | 3  | 13.8 (d)             |  |
| 9            | QUEENSDALE AVE<br>& UPPER GAGE AVE  | 1.16   | 0.97   | 1.20  | 20688                 | 3                    | 8    | 7    | 10   | 14 | 8.4                  |  |
| 10           | BARTON ST<br>& GAGE AVE             | 1.15   | 0.84   | 1.36  | 34333                 | 9                    | 12   | 21   | 15   | 12 | 13.8                 |  |
| 11           | BARTON ST<br>& JOHN ST              | 1.12   | 1.03   | 1.09  | 16854                 | 8                    | 3    | 10   | 4    | 8  | 6.6 (g)              |  |
| 12           | YORK BLVD<br>& HESS ST              | 1.10   | 0.96   | 1.15  | 21262                 | 16                   | 6    | 6    | 8    | 5  | 8.2                  |  |
| 13           | KING ST<br>& DUNDURN ST             | 1.10   | 0.78   | 1.40  | 47928                 | 14                   | 20   | 16   | 22   | 20 | 18.4                 |  |
| 14           | QUEENSTON RD<br>& NASH RD           | 1.09   | 0.82   | 1.34  | 39270                 | 10                   | 17   | 20   | 9    | 19 | 15.0                 |  |
| 15           | CANNON ST<br>& GAGE AVE             | 1.01   | 0.93   | 1.09  | 23855                 | 4                    | 6    | 13   | 11   | 8  | 8.4                  |  |
| 16           | KING ST (SC)<br>& GREEN RD          | 0.97   | 1.13   | 0.85  | 12433                 | 1                    | 5    | 4    | 5    | 6  | 4.2                  |  |
| 17           | MAIN ST<br>& BAY ST                 | 0.96   | 0.79   | 1.22  | 45069                 | 16                   | 16   | 15   | 15   | 14 | 15.2 (f)             |  |
| 18           | MAIN ST<br>& DUNDURN ST             | 0.96   | 0.75   | 1.28  | 58540                 | 26                   | 14   | 24   | 17   | 17 | 19.6                 |  |
| 19           | CANNON ST<br>& JOHN ST              | 0.95   | 0.91   | 1.04  | 25196                 | 4                    | 11   | 9    | 13   | 5  | 8.4                  |  |
| 20           | LIMERIDGE RD<br>& UPPER GAGE AVE    | 0.93   | 0.86   | 1.09  | 32479                 | 8                    | 14   | 14   | 13   | 4  | 10.6                 |  |
| 21           | BURLINGTON ST<br>& WENTWORTH ST     | 0.93   | 0.93   | 1.00  | 23962                 | 10                   | 7    | 7    | 10   | 5  | 7.8                  |  |
| 22           | CANNON ST<br>& JAMES ST             | 0.93   | 0.88   | 1.06  | 29531                 | 9                    | 7    | 9    | 14   | 9  | 9.6                  |  |
| 23           | QUEENSDALE AVE<br>& UPPER WENTWORTH | 0.93   | 1.10   | 0.84  | 13600                 | 2                    | 3    | 5    | 5    | 7  | 4.4                  |  |
| 24           | BARTON ST<br>& WENTWORTH ST         | 0.91   | 0.94   | 0.98  | 23185                 | 6                    | 7    | 6    | 11   | 7  | 7.4                  |  |

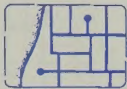




| INTERSECTION                                | RL (a) | RC (b) | RL/RC | AVG. 3 YR<br>AWDT (c) | NUMBER OF COLLISIONS |      |      |      |      | 5 YR<br>AVG. COMMENT |
|---------------------------------------------|--------|--------|-------|-----------------------|----------------------|------|------|------|------|----------------------|
|                                             |        |        |       |                       | 1991                 | 1992 | 1993 | 1994 | 1995 |                      |
| 25 FENNEL AVE & GARTH ST                    | 0.91   | 0.83   | 1.10  | 36978                 | 18                   | 12   | 9    | 11   | 9    | 11.8                 |
| 26 LAWRENCE RD & ROSEDALE AVE               | 0.91   | 1.11   | 0.82  | 13234                 | 6                    | 2    | 5    | 2    | 6    | 4.2                  |
| 27 BARTON ST & BAY ST                       | 0.90   | 1.17   | 0.77  | 11409                 | 3                    | 4    | 4    | 3    | 4    | 3.6                  |
| 28 HUNTER ST & HESS ST                      | 0.89   | 1.24   | 0.72  | 9656                  | 3                    | 6    | 1    | 3    | 2    | 3.0                  |
| 29 BARTON ST & QUEEN ST                     | 0.89   | 1.24   | 0.72  | 9667                  | 1                    | 0    | 4    | 6    | 4    | 3.0                  |
| 30 KING ST & PARKDALE AVE                   | 0.86   | 0.86   | 1.00  | 31168                 | 9                    | 10   | 7    | 5    | 16   | 9.4                  |
| 31 WILSON ST & CATHARINE ST                 | 0.86   | 1.02   | 0.84  | 17385                 | 4                    | 4    | 7    | 6    | 5    | 5.2                  |
| 32 MAIN ST & PARKDALE AVE                   | 0.86   | 0.96   | 0.89  | 21398                 | 4                    | 7    | 14   | 5    | 2    | 6.4                  |
| 33 YORK BLVD & LOCKE ST                     | 0.84   | 0.82   | 1.02  | 38280                 | 10                   | 13   | 6    | 15   | 12   | 11.2                 |
| 34 JACKSON ST & JOHN ST                     | 0.82   | 0.99   | 0.82  | 18934                 | 8                    | 4    | 7    | 1    | 7    | 5.4                  |
| 35 MAIN ST & VICTORIA AVE                   | 0.82   | 0.80   | 1.02  | 42807                 | 9                    | 10   | 20   | 13   | 9    | 12.2                 |
| 36 WILSON ST & HUGHSON ST                   | 0.81   | 1.01   | 0.80  | 17720                 | 2                    | 2    | 8    | 11   | 2    | 5.0                  |
| 37 BARTON ST & WELLINGTON ST                | 0.81   | 0.89   | 0.91  | 28403                 | 5                    | 6    | 9    | 13   | 7    | 8.0                  |
| 38 BEACH RD & GAGE AVE                      | 0.80   | 1.20   | 0.67  | 10682                 | 1                    | 5    | 1    | 4    | 4    | 3.0                  |
| 39 CHARLTON AVE & QUEEN ST                  | 0.80   | 1.00   | 0.80  | 18528                 | 9                    | 7    | 4    | 3    | 3    | 5.2                  |
| 40 WILSON ST & SHERMAN AVE                  | 0.80   | 1.02   | 0.78  | 17175                 | 7                    | 4    | 6    | 2    | 5    | 4.8                  |
| 41 BARTON ST & BIRCH AVE                    | 0.80   | 0.96   | 0.84  | 21514                 | 5                    | 8    | 7    | 7    | 3    | 6.0                  |
| 42 CHARLTON AVE & SHERMAN ACCESS            | 0.80   | 0.94   | 0.85  | 23004                 | 11                   | 7    | 4    | 4    | 6    | 6.4                  |
| 43 STONE CHURCH RD & UPPER WENTWORTH        | 0.79   | 0.99   | 0.80  | 19037                 | **                   | 5    | 6    | 4    | 6    | 5.3                  |
| 44 KING ST & GAGE AVE                       | 0.78   | 0.88   | 0.88  | 28748                 | 9                    | 4    | 9    | 11   | 6    | 7.8                  |
| 45 BURLINGTON ST & GAGE AVE                 | 0.77   | 0.96   | 0.81  | 21469                 | 12                   | 5    | 3    | 3    | 6    | 5.8                  |
| 46 LIMERIDGE RD & WEST 5th ST               | 0.77   | 0.95   | 0.80  | 21630                 | 5                    | 5    | 9    | 7    | 3    | 5.8                  |
| 47 CANNON ST & VICTORIA ST                  | 0.77   | 0.90   | 0.85  | 26894                 | 7                    | 15   | 4    | 4    | 6    | 7.2                  |
| 48 CANNON ST & KENILWORTH AVE               | 0.76   | 0.87   | 0.88  | 30738                 | 9                    | 4    | 10   | 10   | 8    | 8.2                  |
| 49 FENNEL AVE & UPPER WENTWORTH             | 0.76   | 0.85   | 0.89  | 33016                 | 10                   | 4    | 9    | 10   | 11   | 8.8                  |
| 50 BURLINGTON ST & KENILWORTH AVE           | 0.76   | 0.92   | 0.82  | 24106                 | 9                    | 5    | 7    | 4    | 7    | 6.4                  |
| OVERALL STAT. FOR ALL SIGNAL INTERSECTIONS: |        |        |       |                       |                      |      |      |      |      | 4.5                  |

NUMBER OF HAMILTON-WENTWORTH TRAFFIC SIGNAL INTERSECTIONS IN 1995 = 365\*





## Notes:

- (a) RL is the number of collisions, per million vehicles entering the intersection, occurring within 31 feet of an individual intersection.
- (b) RC is a volume-adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the intersection in question is significantly higher than would normally be expected.

$$RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$$

Where: Ra = systemwide average collision rate for all traffic signal locations ( 0.473 collisions per million vehicle entries)

K = constant (=1.65 for 95 % confidence level)

m = vehicle exposure at the location in million vehicles entering per year (AWDTx349,6/1,000,000)

- (c) AWDT - Average Weekday Daily Traffic (total vehicles entering the intersection).
- (d) Reconstructed in 1993 to provide channelized left turn lanes.
- (e) Intersection provided with physical barriers to discourage illegal northbound movements in "must turn lane" in 1991.
- (f) Temporary delineation to discourage illegal movements installed in 1991. Permanent installation placed in 1993.
- (g) Improved signal display in 1996.
- (h) Improved signal timing in 1996.

\*\* Data not applicable.

- \* - Excluding Intersection Pedestrian Signals
- Including MTO-owned signals maintained by the Region.
  - Including 2 right-turn slot signals.

# Exhibit 2.4

## TWO-WAY STOP INTERSECTIONS WITH THE HIGHEST COLLISION RATES FROM 1991 TO 1995

| INTERSECTION                              | RL (a) | RC (b) | RL/RC | AVG.3 YR<br>AWDT (c) | NUMBER OF COLLISIONS |      |      |      |      | 5 YR<br>AVG. COMMENT |
|-------------------------------------------|--------|--------|-------|----------------------|----------------------|------|------|------|------|----------------------|
|                                           |        |        |       |                      | 1991                 | 1992 | 1993 | 1994 | 1995 |                      |
| 1 PARK ST<br>& VINE ST                    | 4.39   | 1.91   | 2.29  | 3392                 | 5                    | 6    | 7    | 3    | 5    | 5.20                 |
| 2 FERGUSON AVE<br>& JACKSON ST            | 2.81   | 2.02   | 1.39  | 3053                 | 5                    | 3    | 4    | 1    | 2    | 3.00                 |
| 3 BARTON ST<br>& MACNAB ST                | 2.81   | 1.26   | 2.24  | 8966                 | 5                    | 11   | 8    | 10   | 10   | 8.80 (h)             |
| 4 PARK ST (D)<br>& SYDENHAM RD            | 1.94   | 1.39   | 1.39  | 6882                 | 4                    | 3    | 7    | *    | *    | 4.67 (d)             |
| 5 MAIN ST (F)<br>& PARKSIDE DR            | 1.89   | 1.58   | 1.20  | 5151                 | 2                    | 6    | 3    | 4    | 2    | 3.40                 |
| 6 CAROLINE ST<br>& CHARLTON AVE           | 1.88   | 1.25   | 1.51  | 9149                 | 4                    | 8    | 9    | 4    | 5    | 6.00 (i)             |
| 7 CATHARINE ST<br>& JACKSON ST            | 1.76   | 1.27   | 1.39  | 8754                 | 4                    | 4    | 6    | 8    | 5    | 5.40 (d)             |
| 8 HUGHSON ST<br>& JACKSON ST              | 1.71   | 1.59   | 1.07  | 5014                 | 3                    | 2    | 5    | 2    | *    | 3.00 (d)             |
| 9 HUNTER ST<br>& WALNUT ST                | 1.60   | 1.37   | 1.17  | 7155                 | 2                    | 6    | 3    | 4    | 5    | 4.00                 |
| 10 HUGHSON ST<br>& REBECCA ST             | 1.55   | 1.59   | 0.98  | 5061                 | 2                    | 0    | 4    | 5    | *    | 2.75 (d)             |
| 11 CANNON ST<br>& MACNAB ST               | 1.12   | 0.95   | 1.18  | 20370                | 5                    | 5    | 10   | 11   | 9    | 8.00 (f)             |
| 12 BARNESDALE AVE<br>& CANNON ST          | 1.00   | 1.08   | 0.93  | 13759                | 5                    | 4    | 6    | 3    | 6    | 4.80                 |
| 13 MEADOWBROOK (A)<br>& WILSON/HWY 2      | 0.89   | 1.29   | 0.69  | 8323                 | 0                    | 3    | 2    | 4    | 4    | 2.60                 |
| 14 NEBO RD (G)<br>& WHITE CHURCH RD       | 0.85   | 1.92   | 0.44  | 3361                 | 1                    | 1    | 0    | 1    | 2    | 1.00                 |
| 15 HUGHSON ST<br>& YOUNG ST               | 0.82   | 1.34   | 0.62  | 7646                 | 3                    | 3    | 1    | 2    | 2    | 2.20                 |
| 16 BARTON ST<br>& HUGHSON ST              | 0.79   | 1.06   | 0.75  | 14411                | 5                    | 7    | 4    | 2    | 2    | 4.00                 |
| 17 CHARLTON AVE<br>& HUGHSON ST           | 0.74   | 1.24   | 0.60  | 9241                 | 0                    | 0    | 3    | 4    | 5    | 2.40 (g)             |
| 18 FIDDLERS GREEN (A)<br>& JERSEYVILLE RD | 0.74   | 1.39   | 0.53  | 6965                 | 0                    | 0    | 4    | 3    | 2    | 1.80                 |
| 19 KING ST<br>& WEST AVE                  | 0.73   | 0.91   | 0.81  | 24139                | 7                    | 6    | 5    | 10   | 3    | 6.20                 |
| 20 FOREST AVE<br>& HUGHSON ST             | 0.71   | 1.62   | 0.44  | 4850                 | 0                    | 1    | 5    | 0    | 0    | 1.20                 |
| 21 KING ST<br>& PARADISE RD               | 0.61   | 0.92   | 0.66  | 22584                | 0                    | 2    | 6    | 8    | 8    | 4.80 (f)(i)          |
| 22 GOLFLINKS RD (A)<br>& MEADOWLANDS      | 0.58   | 1.39   | 0.42  | 6932                 | 0                    | 0    | 1    | 3    | 3    | 1.40                 |
| 23 KING ST<br>& PAISLEY AVE               | 0.57   | 1.07   | 0.53  | 14162                | 1                    | 3    | 4    | 1    | 5    | 2.80                 |
| 24 AUGUSTA ST<br>& JOHN ST                | 0.55   | 0.92   | 0.60  | 22707                | 3                    | 7    | 3    | 4    | 5    | 4.40                 |







# 1995 Hamilton-Wentworth Collision Report

| INTERSECTION                           | RL (a) | RC (b) | RL/RC | AVG. 3 YR<br>AWDT (c) | NUMBER OF COLLISIONS |      |      |      |      | 5 YR<br>AVG. COMMENT |
|----------------------------------------|--------|--------|-------|-----------------------|----------------------|------|------|------|------|----------------------|
|                                        |        |        |       |                       | 1991                 | 1992 | 1993 | 1994 | 1995 |                      |
| 25 CAROLINE ST<br>& HERKIMER ST        | 0.55   | 1.12   | 0.50  | 12412                 | 4                    | 0    | 1    | 5    | 2    | 2.40                 |
| 26 GARTH ST<br>& SANATORIUM RD         | 0.54   | 0.97   | 0.56  | 18977                 | 2                    | 5    | 5    | 3    | 3    | 3.60 (g)             |
| 27 RIDGEMOUNT DR<br>& STONE CHURCH RD  | 0.54   | 1.09   | 0.49  | 13243                 | 1                    | 3    | 4    | 2    | *    | 2.50 (g)             |
| 28 HERKIMER ST<br>& MACNAB ST          | 0.53   | 1.14   | 0.47  | 11806                 | 1                    | 3    | 4    | 1    | 2    | 2.20                 |
| 29 STEVEN ST<br>& WILSON ST            | 0.50   | 1.11   | 0.45  | 12470                 | 2                    | 1    | 3    | 2    | 3    | 2.20                 |
| 30 BALSAM AVE<br>& CANNON ST           | 0.50   | 0.99   | 0.51  | 18195                 | 2                    | 2    | 5    | 4    | 3    | 3.20                 |
| 31 MUD ST<br>& PRITCHARD RD            | 0.48   | 0.93   | 0.52  | 22493                 | 1                    | 5    | 4    | 5    | 4    | 3.80                 |
| 32 COMMUNITY (SC)<br>& GRAYS RD        | 0.46   | 1.15   | 0.40  | 11254                 | 1                    | 0    | 1    | 2    | 5    | 1.80                 |
| 33 CROCKETT ST<br>& UPPER GAGE AVE     | 0.46   | 1.02   | 0.45  | 16271                 | 2                    | 5    | 2    | 1    | 3    | 2.60                 |
| 34 CANNON ST<br>& FERGUSON AVE         | 0.43   | 0.98   | 0.44  | 18647                 | 3                    | 5    | 2    | 1    | 3    | 2.80                 |
| 35 AUGUSTA ST<br>& HUGHSON ST          | 0.42   | 1.75   | 0.24  | 4073                  | 1                    | 0    | 1    | 1    | 0    | 0.60                 |
| 36 CHARLTON AVE<br>& VICTORIA AVE      | 0.41   | 1.04   | 0.39  | 15318                 | 2                    | 1    | 4    | 1    | 3    | 2.20                 |
| 37 MARKLAND ST<br>& QUEEN ST           | 0.41   | 0.96   | 0.42  | 19543                 | 2                    | 2    | 6    | 2    | 2    | 2.80                 |
| 38 BRUCEDALE AVE<br>& UPPER WENTWORTH  | 0.40   | 1.10   | 0.36  | 12875                 | 2                    | 3    | 2    | 1    | 1    | 1.80                 |
| 39 BRUCEDALE AVE<br>& UPPER SHERMAN AV | 0.39   | 0.97   | 0.40  | 19233                 | 2                    | 3    | 7    | 0    | 1    | 2.60                 |
| 40 UPPER WENTWORTH<br>& VICKERS RD     | 0.38   | 1.01   | 0.37  | 16725                 | 3                    | 1    | 3    | 4    | 0    | 2.20                 |
| 41 MILES/EVA<br>& RYMAL/HWY 53         | 0.38   | 0.89   | 0.42  | 25897                 | 3                    | 1    | 6    | 4    | 3    | 3.40                 |
| 42 GAGE AVE<br>& MAPLEWOOD AVE         | 0.36   | 1.16   | 0.31  | 11002                 | 2                    | 1    | 1    | 2    | 1    | 1.40                 |
| 43 HERKIMER ST<br>& QUEEN ST           | 0.36   | 0.95   | 0.38  | 20505                 | 4                    | 2    | 3    | 0    | 4    | 2.60                 |
| 44 BARNESDALE AVE<br>& KING/HWY 8      | 0.35   | 0.94   | 0.37  | 21195                 | 1                    | 3    | 3    | 2    | 4    | 2.60                 |
| 45 INVERNESS AVE<br>& UPPER WELLINGTON | 0.35   | 0.92   | 0.38  | 22833                 | 2                    | 3    | 5    | 0    | 4    | 2.80                 |
| 46 QUEENSTON RD<br>& ROSEWOOD RD       | 0.34   | 0.90   | 0.38  | 24943                 | 3                    | 1    | 3    | 5    | 3    | 3.00                 |
| 47 DUNDURN ST<br>& HERKIMER ST         | 0.34   | 1.20   | 0.28  | 10044                 | 2                    | 2    | 1    | 0    | 1    | 1.20                 |
| 48 COURTLAND AVE<br>& STONE CHURCH RD  | 0.32   | 1.26   | 0.25  | 8932                  | 1                    | 2    | 0    | 0    | 2    | 1.00                 |
| 49 CAMPBELL AVE<br>& OTTAWA ST         | 0.32   | 1.02   | 0.31  | 16300                 | 4                    | 1    | 2    | 1    | 1    | 1.80 (g)             |
| 50 SOUTH BEND RD<br>& UPPER WELLINGTON | 0.31   | 1.02   | 0.31  | 16394                 | 3                    | 1    | 2    | 2    | 1    | 1.80                 |

OVERALL STATISTICS FOR INTERSECTIONS: 0.46 1.9

NUMBER OF HAMILTON-WENTWORTH 2 WAY-STOP INTERSECTIONS WITH MEASURED TRAFFIC VOLUME 1995 = 130



## Notes:

(a) RL is the number of collisions, per million vehicles entering the intersection, occurring within 31 feet of an individual intersection.

(b) RC is a volume-adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the intersection in question is significantly higher than would normally be expected.

$$RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$$

Where: Ra = systemwide average collision rate for all 2-way stop locations ( 0.462 collisions per million vehicle entries)

K = constant (=1.65 for 95 % confidence level)

m = vehicle exposure at the location in million vehicles entering per year (AWDTx349.6/1,000,000)

(c) AWDT - Average Weekday Daily Traffic (total vehicles entering the intersection).

(d) Converted to All-Way Stop.

(e) Converted to Traffic Signal.

(f) Improved lane markings.

(g) Intersection Priority Signal location.

(h) Improved signing.

(i) Sharp curve in road.

(j) Improved sight line visibility.

\* Data not applicable.





## Exhibit 2.5

# ALLWAY-STOP INTERSECTIONS WITH THE HIGHEST COLLISION RATES FROM 1991 TO 1995

| INTERSECTION                          | RL (a) | RC (b) | RL/RC | AVG.3 YR<br>AWDT (c) | NUMBER OF COLLISIONS |      |      |      |      | 5 YR<br>AVG. COMMENT |
|---------------------------------------|--------|--------|-------|----------------------|----------------------|------|------|------|------|----------------------|
|                                       |        |        |       |                      | 1991                 | 1992 | 1993 | 1994 | 1995 |                      |
| 1 HORNING DR & UPPER HORNING RD       | 3.61   | 5.04   | 0.72  | 950                  | 0                    | 4    | 2    | 0    | 0    | 1.2 (e)              |
| 2 HUGHSON ST & KING WILLIAM ST        | 1.62   | 2.66   | 0.61  | 3524                 | *                    | *    | 3    | 2    | 1    | 2.0                  |
| 3 MOHAWK RD & UPPER KENILWORTH        | 0.70   | 1.84   | 0.38  | 9842                 | 5                    | 1    | 2    | 3    | 1    | 2.4                  |
| 4 STONE CHURCH RD & UPPER SHERMAN AVE | 0.65   | 1.65   | 0.39  | 14365                | 5                    | 4    | 2    | 2    | *    | 3.3 (d)              |
| 5 AIRPORT RD & HOMESTEAD DR           | 0.47   | 2.16   | 0.22  | 6094                 | 0                    | 1    | 2    | 0    | 2    | 1.0                  |
| 6 HUCKLEBERRY DR & LAKE AVE           | 0.45   | 1.97   | 0.23  | 8000                 | *                    | 2    | 0    | 2    | 1    | 1.3                  |
| 7 FORSYTH AVE & KING ST               | 0.33   | 1.91   | 0.17  | 8772                 | 0                    | 2    | 2    | 0    | 1    | 1.0                  |
| 8 GREENHILL AVE & QUIGLEY RD          | 0.30   | 1.85   | 0.16  | 9647                 | 2                    | 0    | 0    | 3    | 0    | 1.0                  |
| 9 PARAMOUNT DR & UPPER MOUNT ALBION   | 0.29   | 1.85   | 0.16  | 9752                 | 2                    | 0    | 0    | 0    | 3    | 1.0                  |
| 10 SANATORIUM RD & UPPER PARADISE RD  | 0.26   | 1.79   | 0.15  | 10817                | 0                    | 0    | 4    | 1    | 0    | 1.0                  |

AVERAGE RATE FOR ALL INTERSECTIONS:

0.87



## Notes:

(a) RL is the number of collisions, per million vehicles entering the intersection, occurring within 31 feet of an individual intersection.

(b) RC is a volume-adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the intersection in question is significantly higher than would normally be expected.

$$RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$$

Where: Ra = systemwide average collision rate for all all-way stop locations ( 0.868 collisions per million vehicle entries)

K = constant (=1.65 for 95 % confidence level)

m = vehicle exposure at the location in million vehicles entering per year (AWDTx349.6/1,000,000)

(c) AWDT - Average Weekday Daily Traffic (total vehicles entering the intersection).

(d) Converted to Traffic Signal.

(e) Upper Horning closed at Freeway in 1995.

\* Data not applicable.





## Exhibit 2.6

# URBAN ROAD SECTIONS WITH THE HIGHEST COLLISION RATES FROM 1991 TO 1995 SIGNALIZED INTERSECTIONS NOT INCLUDED

| ARTERIAL STREET  | From              | To                  | Number of<br>Collisions | RL   | RC   | Ratio | Link<br>(Km) | Volume<br>(AWDT) | Million<br>Veh-Km/Yr |
|------------------|-------------------|---------------------|-------------------------|------|------|-------|--------------|------------------|----------------------|
| 1 BARTON ST      | QUEEN ST          | JAMES ST            | 73                      | 7.37 | 3.61 | 2.04  | 0.872        | 6507             | 1.98                 |
| 2 CHARLTON AVE   | JAMES ST          | JOHN ST             | 29                      | 6.44 | 4.67 | 1.38  | 0.244        | 10590            | 0.90                 |
| 3 BAY ST         | KING ST           | CANNON ST           | 32                      | 6.27 | 4.47 | 1.40  | 0.450        | 6462             | 1.02                 |
| 4 KING ST        | PARADISE RD       | NEWTON AVE          | 119                     | 6.04 | 3.03 | 1.99  | 0.781        | 14419            | 3.94                 |
| 5 JAMES ST       | MURRAY ST         | BURLINGTON ST       | 52                      | 5.62 | 3.68 | 1.53  | 0.890        | 5940             | 1.85                 |
| 6 KENILWORTH AVE | KENILWORTH ACCESS | MAIN ST             | 135                     | 5.50 | 2.89 | 1.90  | 0.695        | 20223            | 4.91                 |
| 7 MAIN ST        | KENILWORTH AVE    | BERRY AVE           | 183                     | 5.31 | 2.70 | 1.97  | 0.702        | 28059            | 6.89                 |
| 8 JAMES ST       | BARTON ST         | MURRAY ST           | 9                       | 5.29 | 7.05 | 0.75  | 0.120        | 8176             | 0.34                 |
| 9 BARTON ST      | WELLINGTON ST     | WENTWORTH ST        | 118                     | 5.27 | 2.94 | 1.79  | 0.872        | 14704            | 4.48                 |
| 10 CHARLTON AVE  | QUEEN ST          | JAMES ST            | 58                      | 5.20 | 3.49 | 1.49  | 0.823        | 7754             | 2.23                 |
| 11 WENTWORTH ST  | DELAWARE AVE      | KING ST             | 29                      | 5.09 | 4.30 | 1.18  | 0.500        | 6515             | 1.14                 |
| 12 BARTON ST     | GAGE AVE          | OTTAWA ST           | 168                     | 5.05 | 2.72 | 1.86  | 0.860        | 22137            | 6.66                 |
| 13 SHERMAN AVE   | BARTON ST         | BURLINGTON ST       | 34                      | 4.72 | 3.98 | 1.19  | 1.055        | 3892             | 1.44                 |
| 14 BARTON ST     | JAMES ST          | WELLINGTON ST       | 86                      | 4.48 | 3.05 | 1.47  | 0.836        | 13154            | 3.84                 |
| 15 KING ST       | WELLINGTON ST     | WENTWORTH AVE       | 180                     | 4.41 | 2.62 | 1.68  | 0.866        | 26948            | 8.16                 |
| 16 WILSON ST     | WELLINGTON ST     | WENTWORTH AVE       | 76                      | 4.33 | 3.11 | 1.39  | 0.860        | 11674            | 3.51                 |
| 17 BRITANNIA AVE | BARONS AVE        | STRATHEARNE AVE     | 31                      | 4.31 | 3.98 | 1.08  | 0.488        | 8448             | 1.44                 |
| 18 WENTWORTH ST  | CHARLTON AVE      | DELAWARE AVE        | 31                      | 4.28 | 3.97 | 1.08  | 0.351        | 11798            | 1.45                 |
| 19 KING ST       | QUEEN ST          | JAMES ST            | 156                     | 4.14 | 2.66 | 1.56  | 0.860        | 25036            | 7.53                 |
| 20 QUEEN ST      | KING ST           | BARTON ST           | 43                      | 4.13 | 3.56 | 1.16  | 0.823        | 7232             | 2.08                 |
| 21 CANNON ST     | GAGE AVE          | OTTAWA ST           | 80                      | 4.02 | 3.02 | 1.33  | 0.866        | 13160            | 3.98                 |
| 22 JAMES ST      | ST. JOSEPH'S DR   | KING ST (N. BRANCH) | 101                     | 4.00 | 2.87 | 1.39  | 0.968        | 14917            | 5.05                 |
| 23 MARKLAND AVE  | QUEEN ST          | JAMES ST            | 11                      | 4.00 | 5.68 | 0.70  | 0.823        | 1923             | 0.55                 |
| 24 BARTON ST     | WENTWORTH ST      | SHERMAN AVE         | 84                      | 3.94 | 2.98 | 1.32  | 0.842        | 14458            | 4.26                 |
| 25 QUEEN ST      | ABERDEEN AVE      | HERKIMER ST         | 42                      | 3.78 | 3.50 | 1.08  | 0.282        | 22534            | 2.22                 |

1.79

OVERALL STATISTICS FOR ARTERIAL STREETS:



# URBAN ROAD SECTIONS WITH THE HIGHEST COLLISION RATES FROM 1991 TO 1995 INTERSECTIONS NOT INCLUDED

|    | ARTERIAL STREET | From                | To                  | Number of<br>Collisions | RL   | RC   | Ratio | Link<br>(Km) | Volume<br>(AWDT) | Million<br>Veh-Km/Yr |
|----|-----------------|---------------------|---------------------|-------------------------|------|------|-------|--------------|------------------|----------------------|
| 1  | KING ST         | QUEEN ST            | JAMES ST            | 156                     | 4.14 | 1.87 | 2.21  | 0.860        | 25036            | 7.53                 |
| 2  | KENILWORTH AVE  | KENILWORTH ACCESS   | MAIN ST             | 98                      | 3.99 | 2.06 | 1.94  | 0.695        | 20223            | 4.91                 |
| 3  | BAY ST          | KING ST             | CANNON ST           | 19                      | 3.73 | 3.41 | 1.09  | 0.450        | 6462             | 1.02                 |
| 4  | CHARLTON AVE    | JAMES ST            | JOHN ST             | 15                      | 3.33 | 3.59 | 0.93  | 0.244        | 10590            | 0.90                 |
| 5  | BARTON ST       | WELLINGTON ST       | WENTWORTH ST        | 70                      | 3.13 | 2.11 | 1.48  | 0.872        | 14704            | 4.48                 |
| 6  | KING ST         | PARADISE RD         | NEWTON AVE          | 60                      | 3.05 | 2.18 | 1.40  | 0.781        | 14419            | 3.94                 |
| 7  | LIMERIDGE RD    | UPPER WENTWORTH     | UPPER SHERMAN AVE   | 99                      | 2.96 | 1.92 | 1.54  | 0.808        | 23649            | 6.68                 |
| 8  | JAMES ST        | BARTON ST           | MURRAY ST           | 5                       | 2.94 | 5.68 | 0.52  | 0.120        | 8176             | 0.34                 |
| 9  | JAMES ST        | KING ST (N. BRANCH) | BARTON ST           | 45                      | 2.90 | 2.33 | 1.24  | 0.860        | 10301            | 3.10                 |
| 10 | UPPER JAMES ST  | LIMERIDGE RD        | MOHAWK RD           | 137                     | 2.87 | 1.79 | 1.60  | 1.049        | 26041            | 9.55                 |
| 11 | JAMES ST        | ST. JOSEPH'S DR     | KING ST (N. BRANCH) | 71                      | 2.81 | 2.05 | 1.37  | 0.968        | 14917            | 5.05                 |
| 12 | SHERMAN AVE     | BARTON ST           | BURLINGTON ST       | 20                      | 2.78 | 2.99 | 0.93  | 1.055        | 3892             | 1.44                 |
| 13 | BARTON ST       | JAMES ST            | WELLINGTON ST       | 53                      | 2.76 | 2.20 | 1.25  | 0.836        | 13154            | 3.84                 |
| 14 | WENTWORTH ST    | DELAWARE AVE        | KING ST             | 15                      | 2.63 | 3.26 | 0.81  | 0.500        | 6515             | 1.14                 |
| 15 | MAIN ST         | JAMES ST            | WELLINGTON ST       | 106                     | 2.59 | 1.84 | 1.41  | 0.866        | 27081            | 8.20                 |
| 16 | BARTON ST       | WENTWORTH ST        | SHERMAN AVE         | 55                      | 2.58 | 2.14 | 1.21  | 0.842        | 14458            | 4.26                 |
| 17 | KING ST         | WELLINGTON ST       | WENTWORTH ST        | 103                     | 2.52 | 1.84 | 1.37  | 0.866        | 26948            | 8.16                 |
| 18 | BARTON ST       | GAGE AVE            | OTTAWA ST           | 83                      | 2.49 | 1.92 | 1.30  | 0.860        | 22137            | 6.66                 |
| 19 | JAMES ST        | MURRAY ST           | BURLINGTON ST       | 23                      | 2.49 | 2.74 | 0.91  | 0.890        | 5940             | 1.85                 |
| 20 | ARKLEDUN AVE    | JOLLEY CUT          | JOHN ST             | 53                      | 2.48 | 2.14 | 1.16  | 0.400        | 30514            | 4.27                 |
| 21 | BARTON ST       | NASH RD             | CENTENNIAL PKWY     | 80                      | 2.43 | 1.93 | 1.26  | 0.836        | 22529            | 6.58                 |
| 22 | BRAMPTON ST     | STRATHEARNE AVE     | PARKDALE AVE        | 12                      | 2.42 | 3.45 | 0.70  | 0.720        | 3952             | 0.99                 |
| 23 | KING ST         | CATHARINE ST        | WELLINGTON ST       | 49                      | 2.41 | 2.16 | 1.12  | 0.531        | 21889            | 4.06                 |
| 24 | ST. JOSEPH'S DR | JAMES ST            | JOHN ST             | 22                      | 2.40 | 2.75 | 0.87  | 0.256        | 20461            | 1.83                 |
| 25 | MOHAWK RD       | UPPER PARADISE RD   | GARTH ST            | 91                      | 2.26 | 1.85 | 1.22  | 0.839        | 27492            | 8.06                 |

OVERALL STATISTICS FOR ARTERIAL STREETS:

1.16







Notes: Collision Rates on Roadway Sections

1. Exhibit 2.6 includes all collisions on arterial roadway sections excluding those which occur within nine metres of a signalized intersection. If the roadway section ends at an unsignalized intersection, one-half the number of collisions occurring at the intersection is included.
2. Exhibit 2.7 includes only collisions on arterial roadway sections which occur greater than nine metres from any intersection. That is, no collisions referenced to an intersection, signalized or unsignalized, are included.
3. RL is the collision rate for the roadway section expressed as collisions per million vehicle kilometres travelled per annum.
4. RC is a volume-adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the intersection in question is significantly higher than would normally be expected.

$$RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$$

Where: Ra = systemwide average collision rate for all roadway sections:

1.79 collisions per million vehicle kilometres in 1991-1995 for Exhibit 2.6;

1.16 collisions per million vehicle kilometres in 1991-1995 for Exhibit 2.7.

K = constant (=1.65 for 95 % confidence level)

m = vehicle exposure for the individual roadway section in million vehicle kilometres per year (AWDT x Section Length x 349.6/1,000,000)

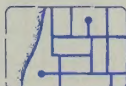
5. AWDT - Average Weekday Daily Traffic

## 1995 COLLISION STATISTICS - SELECTED CANADIAN CITIES

| CITY OR REGIONAL<br>MUNICIPALITY | POPULATION | PROPERTY DAMAGE                   |              |     | COLLISION REPORTING |     |     | TOTAL<br>COLLISIONS | COLLISIONS<br>/1000 |            | INJURY<br>COLLISIONS<br>/1000 |            |
|----------------------------------|------------|-----------------------------------|--------------|-----|---------------------|-----|-----|---------------------|---------------------|------------|-------------------------------|------------|
|                                  |            | ONLY COLLISION<br>REPORTING LEVEL | CRITERIA (1) | (a) | (b)                 | (c) | (d) |                     | POPULATION          | COLLISIONS | POPULATION                    | COLLISIONS |
| CITIES                           |            |                                   |              |     |                     |     |     |                     |                     |            |                               |            |
| HAMILTON                         | 319,281    | 700                               |              | N   | N                   | Y   | Y   | f                   | 5,987               | 18.8       | 1,642                         | 5.1        |
| CALGARY (1994)                   | 738,184    | 1000                              |              | N   | N                   | N   | Y   | e, f                | 26,291              | 35.6       | 2,729                         | 3.7        |
| EDMONTON                         | 628,000    | 1000                              |              | N   | N                   | N   | Y   |                     | 16,834              | 26.8       | 4,852                         | 7.7        |
| HALIFAX (1994)                   | 114,455    | 500                               |              | Y   | Y                   | Y   | Y   |                     | 4,136               | 36.1       | 713                           | 6.2        |
| LONDON                           | 326,000    | 700                               |              | Y   | Y                   | Y   | Y   |                     | 11,062              | 33.9       | 2,128                         | 6.5        |
| MONTREAL                         | 1,019,000  | 500                               |              | N   | N                   | N   | Y   | g                   | 25,089              | 24.6       | 4,903                         | 4.8        |
| MISSISSAUGA (8)                  | 560,000    | 700                               |              | N   | N                   | N   | Y   |                     | 5,303               | 9.5        | 965                           | 1.7        |
| REGINA (1994)                    | 179,178    | 1000                              |              | N   | N                   | N   | Y   | f                   | 5,751               | 32.1       | 1,568                         | 8.8        |
| SASKATOON                        | 199,200    | 1000                              |              | N   | N                   | N   | Y   | f                   | 6,939               | 34.8       | 1,223 (3)                     | 6.1        |
| METRO TORONTO                    | 2,187,000  | 700                               |              | Y   | Y                   | Y   | Y   | e, f                | 49,419              | 22.6       | 16202 (3)                     | 7.4        |
| VANCOUVER                        | 521,048    | 1000                              |              | N   | N                   | N   | Y   | f                   | 18,798              | 36.1       | 4,528                         | 8.7        |
| WINDSOR                          | 200,000    | 1000                              |              | Y   | Y                   | Y   | Y   |                     | 8,243               | 41.2       | 1,263                         | 6.3        |
| WINNIPEG                         | 632,000    | 1000                              |              | Y   | Y                   | Y   | Y   | f                   | 17,599              | 27.8       | 5,190                         | 8.2        |







# 1995 Hamilton-Wentworth Collision Report

| CITY OR REGIONAL MUNICIPALITY     | POPULATION | PROPERTY DAMAGE ONLY COLLISION REPORTING CRITERIA (1) |     |     |     |     | TOTAL COLLISIONS |        | COLLISIONS /1000 POPULATION |       | INJURY COLLISIONS /1000 POPULATION |
|-----------------------------------|------------|-------------------------------------------------------|-----|-----|-----|-----|------------------|--------|-----------------------------|-------|------------------------------------|
|                                   |            | REPORTING LEVEL                                       | (a) | (b) | (c) | (d) | Other            |        |                             |       |                                    |
| REGIONS                           |            |                                                       |     |     |     |     |                  |        |                             |       |                                    |
| REGIONAL HAMILTON-WENTWORTH (4)   | 459,656    | 700                                                   | N   | N   | Y   | Y   | f                | 5,987  | 13.0                        | 2,111 | 4.6                                |
| REGION OF HALTON                  | 340,000    | 700                                                   | N   | N   | Y   | Y   |                  | 4,350  | 12.8                        | 942   | 2.8                                |
| REGIONAL OTTAWA-CARLTON           | 696,048    | 700                                                   | N   | N   | N   | Y   | e,f              | 14,145 | 20.3                        | 3,668 | 5.3                                |
| REGIONAL MUNICIPALITY OF PEEL (5) | 879,100    | 700                                                   | Y   | Y   | Y   | Y   | e,f              | 3,545  | 4.0                         | 800   | 0.9                                |
| REGIONAL WATERLOO (7)             | 419,150    | 700                                                   | Y   | Y   | Y   | Y   | f                | 12,716 | 30.3                        | 1,668 | 4.0                                |

## (1) KEY TO CRITERIA FOR REPORTING COLLISIONS (See next page for definitions of injury collisions)

It is generally assumed, unless otherwise noted, that only collisions occurring on public roadways involving personal injury or property damage greater than the reporting level are included on this table.

- (a) Collisions reported involving an infraction of the Provincial Highway Traffic Act with property damage only and less than reporting level.
- (b) Collisions reported involving an infraction of the Criminal Code of Canada with property damage only and less than reporting level.
- (c) Hit and run collisions reported with property damage only and less than reporting level.
- (d) Collisions reported if it involves any personal injury.
- (e) Public property damage collisions.
- (f) Collisions involving City or Regional government vehicles.
- (g) "With the introduction of amicable constat by insurance companies in July, 1979, a great number of accidents with material damages are not reported and are out of control".

(2) Only injuries requiring medical attention were classified as injury collisions.

(3) Injury collisions do not include fatal collisions.

(4) Not including Kings Highways.

(5) Regional municipality statistics are for Regional roads only and do not include Burlington, in the case of Halton, or Mississauga, Brampton, or Caledon, in the case of Peel. Thus, the collision rates stated will substantially underrepresent the actual rates for all roads within that Regional municipality.

(6) Regional Municipality of Halton statistics are for ALL roads, for ALL municipalities, within Halton Region as provided by Halton Region Police.

(7) Regional Municipality of Waterloo statistics are for both Regional and area municipality roads. Injury collisions include fatal collisions.

(8) Data is for City roadways only, and does not include Regional roadways. Thus, the collision rates stated will underrepresent the overall rates.





## DEFINITIONS OF "PERSONAL INJURY" (a)

|                                     |                                                                                                           |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Regional<br>Hamilton-Wentworth      | - any bodily harm, visible or complained of, that results from a motor vehicle collision.                 |
| City of Hamilton                    | - any bodily harm, visible or complained of, that results from a motor vehicle collision.                 |
| Calgary                             | - any type of injury resulting from a collision.                                                          |
| Edmonton                            | - including minor abrasions and bruises, complaint of pain, caused by a motor vehicle collision.          |
| Halifax                             | - injury or death (no stipulation regarding severity of injury) caused by a motor vehicle collision.      |
| London                              | - any type of injury, visible or complained of, caused by a collision; need not be treated at a hospital. |
| Mississauga                         | - N/A                                                                                                     |
| Metro Toronto                       | - injury must be reported when an injury occurs to any of the involved persons in a collision.            |
| Montreal                            | - any injury, apparent or not, to any person, caused directly or indirectly, by a motor vehicle.          |
| Regina                              | - any bodily harm, visible or complaint of, caused by the accident.                                       |
| Saskatoon                           | - any bodily harm, visible or complaint of, caused by the accident.                                       |
| Vancouver                           | - N/A                                                                                                     |
| Windsor                             | - any injury resulting from a motor vehicle collision.                                                    |
| Winnipeg                            | - readily identifiable injury or perceived injury caused by a collision.                                  |
| Region of Halton                    | - any bodily harm, visible or complaint of, that results from a motor vehicle collision.                  |
| Regional Municipality<br>of Niagara | - any type of injury resulting from a collision.                                                          |
| Regional Municipality<br>of Peel    | - any bodily harm, visible or complaint of, that results from a motor vehicle collision.                  |
| Regional Ottawa-Carlton             | - injury is any bodily harm, visible or complained of, caused by a motor vehicle collision.               |
| Region of Waterloo                  | - injury or death caused by a motor vehicle collision.                                                    |

(a) Definitions of a "personal injury" such that a collision involving a personal injury must be reported.





# 1995 Hamilton-Wentworth Collision Report

REPORT OF THE HAMILTON-WENTWORTH DISTRICT COUNCIL

The following table shows the number of collisions involving motor vehicles in the Hamilton-Wentworth District in 1995.

The table is divided into two main sections: collisions involving motor vehicles and collisions involving pedestrians.

The first section shows the number of collisions involving motor vehicles.

The second section shows the number of collisions involving pedestrians.

The table shows that there were 1,234 collisions involving motor vehicles in 1995.

Of these, 567 collisions resulted in injuries or fatalities.

The table also shows the number of collisions involving pedestrians.

There were 456 collisions involving pedestrians in 1995.

Of these, 123 collisions resulted in injuries or fatalities.

The table shows that there were 1,690 collisions involving motor vehicles and pedestrians in 1995.

Of these, 690 collisions resulted in injuries or fatalities.

The table also shows the number of collisions involving bicycles.

There were 234 collisions involving bicycles in 1995.

Of these, 56 collisions resulted in injuries or fatalities.

The table shows that there were 2,158 collisions involving motor vehicles, pedestrians, and bicycles in 1995.

Of these, 839 collisions resulted in injuries or fatalities.

The table also shows the number of collisions involving horses.

There were 12 collisions involving horses in 1995.





HAMILTON PUBLIC LIBRARY



3 2022 21335356 4